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Northern Area Platteville Aquifer Gradient Control Well W440 Work Plan

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ENSR Consulting
and Engineering

4500 Park Glen Road
Suite 210
St. Louis Park, MN 55416
(612) 924-0117
FAX (612) 924-0317

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

October 9, 1995

Regional Administrator
United States Environmental
Protection Agency, Region 5
ATTN: Darryl Owens
Mail Code 5HS-11
230 South Dearborn Street
Chicago, Illinois 60604

Director, Solid and Hazardous
Waste Division
Minnesota Pollution Control Agency
ATTN: Site Response Section
520 Lafayette Road North
St. Paul, Minnesota 55155

President
Reilly Industries, Inc.
1510 Market Square Center
151 North Delaware
Indianapolis, Indiana 46204

Re: United States of America, et al. vs. Reilly Tar & Chemical Corporation, et al.
File No. Civ. 4-80-469
CD-RAP Section 9.5.1

Gentlemen:

In accordance with the provisions of Section 9.5.1 of the Remedial Action Plan (RAP) in the referenced case, enclosed is the "Platteville Aquifer Gradient Control Well W440 Wellhouse Construction Work Plan".

If you have any questions concerning this submittal, please contact me.

Sincerely,

William M. Gregg

William M. Gregg
Project Leader for the
City of St. Louis Park

cc: Reilly file (w/encl)

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Northern Area Platteville Aquifer Gradient Control Well W440 Work Plan

NORTHERN AREA PLATTEVILLE AQUIFER GRADIENT CONTROL WELL W440 WORK PLAN

Submitted to the
United States Environmental Protection Agency, Region V
and
Minnesota Pollution Control Agency

Submitted by
City of St. Louis Park
St. Louis Park, Minnesota

Pursuant to
Remedial Action Plan Section No. 9.5.1
Exhibit A to the Consent Decree in
United States of America, et al. v. Reilly Tar & Chemical Corp. et al.
U.S. District Court, District of Minnesota, Civil No. 4-80-469

October 1995

1.0 INTRODUCTION

The purpose of the Northern Area Platteville Aquifer Gradient Control Well W440 Work Plan (Work Plan) is to outline the work required to construct and install well W440, perform an aquifer pumping test using well W440, and provide a permanent pump room for the long-term operation of well W440. This Work Plan includes the following sections:

- Site Management Plan
- Quality Assurance Project Plan
- Health and Safety Plan
- Community Relations Plan

Based on the water quality data presented in the Drift-Platteville Aquifer Northern Area Remedial Investigation Report (City of St. Louis Park (City), 1989) and the Drift-Platteville Aquifer Northern Area Supplemental Remedial Investigation Report (SRI, City of St. Louis Park, 1992), the Platteville Aquifer Northern Area Feasibility Study, May 20, 1992, as amended on March 14, 1994, and on July 18, 1994, recommended the installation of a supplemental gradient control well to limit the spread of polynuclear aromatic hydrocarbons (PAHs) and phenolics in the Northern Area of the Platteville Aquifer.

The Platteville Aquifer Feasibility Study noted that:

> "Section 9 of the CD-RAP specifies the installation and operation of one or more gradient control wells to prevent the further spread of ground water in the Northern Area of the Drift-Platteville Aquifer exceeding any of the drinking water criteria defined in CD-RAP Section 2.2. Thus, operation of a gradient control well placed downgradient of a contaminant source can act to capture the flow from the source and limit the spread of contamination. As such, the CD-RAP provides the objective of the remedial action, as well as a mandate to the Potentially Responsible Parties (PRPs) to control the gradient in the Northern Area of the Platteville Aquifer. Therefore, the individual analysis of this alternative builds on previous evaluations to develop and screen alternatives that were conducted during various studies referenced in the CD-RAP.
>
> In accordance with the remedial action objective stated in the CD-RAP, this alternative is specific to ground water in the Northern Area of the Platteville Aquifer and is not a site-wide remedy. The Northern Area of the Platteville Aquifer gradient control well will

operate independently of other remedial actions required by the CD-RAP for the purpose of preventing the further spread of contamination."

SITE MANAGEMENT PLAN
FOR THE PLATTEVILLE AQUIFER GRADIENT CONTROL WELL
AT THE REILLY TAR & CHEMICAL CORPORATION - ST. LOUIS PARK SITE

OCTOBER 1995

2.0 SITE MANAGEMENT PLAN

The following Site Management Plan (Plan) discusses the installation of the Northern Area Platteville Aquifer gradient control well.

The proposed Platteville Aquifer gradient control well location is indicated in Figure 1. The proposed location is adjacent to the east side of the north side of the Walker Community Center, owned by the City of St. Louis Park School Board. The well will be drilled immediately outside the northeast wall of the building and will be equipped with a pitless adapter unit. This will allow the well controls, flow recorder, sample tap, and other equipment to be located within the existing building and no new wellhouse will be constructed. The new well will be designated well W440.

WELL W440 DESIGN, DRILLING PLANS AND PROCEDURES

The design, drilling plans and procedures are for construction of a 6-inch diameter well that will accommodate a 4-inch submersible pump.

The well will be cased through the drift and open hole construction through the Platteville Formation. If the Platteville Formation is found to be highly weathered, then 6-inch diameter telescoping screen will be used.

- The well will be drilled using direct rotary or cable tool drilling techniques to the depth of the top of bedrock (approximately 90 feet). A nominal 10-inch hole will be drilled to allow for proper grout seal of the 6-inch well casing. A minimum bit size of 10 inches will be used to comply with Minnesota Department of Health (MDH) well code requirement of 4 inches between casing and borehole diameters.

- After the 6-inch casing has been installed, a nominal 6-inch diameter drill bit will be used to drill through the entire thickness of the Platteville Formation. Based on nearby wells (e.g. wells W428 and W438), the Platteville Formation is expected to be approximately 11 feet thick at this location.

- The steel well casing will be equipped with a pitless adapter and will extend from the top of the Platteville Formation to at least 12 inches above the ground surface.

NON-RESPONSIVE

SOURCE: USGS 7½ Minute Topographic Quadrangle, Minneapolis South, Minnesota, 1967, photorevised 1993

SCALE

0 1/4 1/2 1 MILE

N

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FIGURE 1

LOCATION OF WELL W440

St. Louis Park, Minnesota

DRAWN: JJO	DATE: September 20, 1995	PROJECT NO.: 1620-013-300	REV:
FILE NO.:	CHECKED: DWJ		

- Upon completion of the well, a reference point for measuring water levels will be established at the well head. The horizontal location and vertical elevation of this reference point will be surveyed.

A licensed well driller will be contracted to install well W440. The licensed well contractor will use direct rotary or cable tool drilling techniques to advance the boreholes. If rotary drilling methods are used, the casing will be grouted into place with a tremie pipe. All grout and other material specifications will conform with the requirements of the Minnesota Well Water Construction Code. The drilling site will be kept neat and clean at all times. Drilling fluids, cuttings, and other debris will be handled in accordance with the Contingency Plan (Appendix A). Drilling tools and equipment will be steam cleaned before and after drilling. A record containing documentation of these procedures, field notes, well logs, measurements, etc., will be maintained.

PUMP SPECIFICATIONS AND INSTALLATION

The estimated monthly average pumping rate for well W440 will be 40 to 50 gallons per minute (gpm). The total head lift that the submersible pump will be required to overcome is currently estimated to be no more than 150 feet. A 4-inch diameter, 3-phase, 5-horsepower submersible pump will be required to achieve the 50 gpm pumping rate and total head lift. This pump specification (Figure 2) will be re-evaluated following the aquifer test to ensure the proper head calculations are considered.

The construction materials for the submersible pump and discharge pipe are as follows:

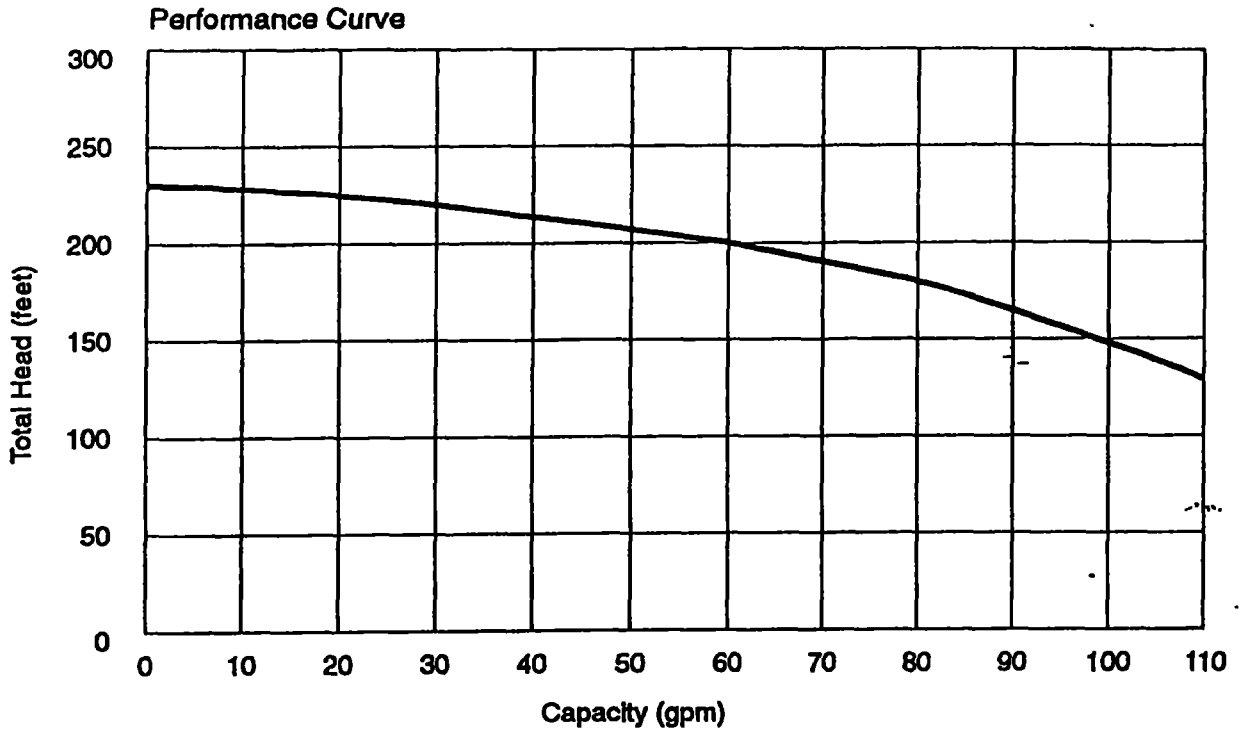
- The submersible pump will be constructed of stainless steel.

- The submersible pump's natural butanol rubber (NBR) impeller seal ring will be retrofitted with teflon.

- A 3-inch national pipe thread (NPT) discharge pipe will extend from the pump outlet to the point of discharge. The discharge pipe will be constructed of galvanized steel or ductile iron.

The submersible pump will be installed within well W440 safely below the pumping water level, as determined through the aquifer tests. The use of low carbon galvanized steel, ductile iron and stainless steel components as well as retrofitting the NBR components with teflon components will increase the operational life expectancy of the system. The final placement of the pump will be determined following the review of the aquifer test data.

Grundfos Pump Model SP16-5



Dimensions and Weights

Model No.	HP	Length	Approx. Unit Shipping Weight
SP16-5	5	44⅜ inches	87 lbs

Nominal Flow Rate: 80 gpm
Flow Range: 48 to 110 gpm
Pump Outlet: 3 inches npt

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FIGURE 2

Pump Specification For Well W440

City of St. Louis Park
St. Louis Park, Minnesota

DRAWN: dwj	DATE: 2 Oct 95	PROJECT No.: 1620-013	Rev: 0
FILE: 1620-013(ptaport)	CHECKED: wmg		

AQUIFER TEST PLAN

An aquifer test will be conducted using well W440 as the pumping well and other Platteville Aquifer monitoring wells to observe drawdown. The aquifer test will determine the hydrologic properties of the Platteville Aquifer at this location, and this information will be used as a basis for evaluating the performance of well W440. The gradient control well pump tests will be performed in accordance with ENSR Standard Operating Procedure Number 7730, Aquifer Test and Data Evaluation (Appendix B) as modified in this Plan. Where there are differences between procedures described in Appendix B and this Plan, this Plan will have priority. Parameters to be ascertained during the aquifer tests include local hydraulic conductivity and storativity of the Platteville Aquifer.

Estimated drawdowns during the Platteville Aquifer test will be calculated using the Hantush-Jacob formula for fully penetrating wells in an aquifer overlain by a semipermeable confining layer.

Measurable drawdowns are expected at Platteville Aquifer observation wells within 1000 feet of the proposed well W440. Two potential observation wells currently exist within 1000 feet of the proposed well W440 location. These wells are wells W428 and W438 located approximately 100 feet northwest, and 700 feet southwest, respectively of well W440. Another potential observation well is W37, located approximately 900 feet southwest of well W440. Well W37 may have recently been abandoned by the property owner, however, if access is available, well W37 will be used for the pump test. Figure 3 shows the locations of these wells.

In addition, hourly water level measurements will be collected at a distant well upgradient (beyond the pumping well cone of influence) in order to identify extraneous influences. The use of a distant well (well W1) will allow correction of observed drawdowns in the event of precipitation or some other extraneous factor during the aquifer tests. If possible, the aquifer tests will be conducted during non-rain events.

An In-Situ Hermit Model SE-2000 Hydrologic Analysis System or equivalent will be used in conjunction with pressure transducers to log water level data at the pumping well and at the observation wells. Use of a computerized data logging system will allow accurate collection of early-time measurements during both the pumping and the recovery phases of the aquifer tests.

Scale 1000 0 1000 2000 Feet

EXPLANATION

⊗ W428 Observation Well

W440 Pumping Well

Base Map Source: U.S.Geological Survey, 7.5 Minute Series Topographic Quadrangle, Minneapolis South, Minnesota, 1967, Revised 1993.

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FIGURE 3

Well W440 Pump Test Location

City of St. Louis Park
St. Louis Park, Minnesota

DRAWN: DWJ	DATE: 2 Oct 95	PROJECT No.: 1620-013	Rev: 0
FILE: 1620-013	CHECKED: wmg		

During the Platteville Aquifer test, the Platteville Aquifer gradient control well will be pumped at the rate of approximately 200 gpm, if possible, or at the highest rate obtainable for the well. Discharge will be conveyed to the sanitary sewer. The well head and the discharge line will be equipped with a flowmeter and flow control valve to measure and control the discharge rate.

The aquifer test at well W440 will consist of three phases: an initial phase to determine antecedent trends, a pumping phase, and a recovery phase. During the initial phase, water levels in well W440 and the observation wells will be recorded each hour for 48 hours prior to pumping. The pumping phase will last approximately 24 hours. The exact duration of the pumping phase will be determined based on data collected during the test. When drawdown in W440 has stabilized to within 0.10 feet in 12 hours, the pumping phase will be terminated. Water levels will be recorded every 10 seconds through the first 2 minutes, every 30 seconds through the first 5 minutes, every minute through the first 10 minutes, every 5 minutes through the first hour, every 15 minutes through the third hour, every 30 minutes through the fifth hour, and every hour until the end of the pumping phase. Water levels will then be recorded during the recovery phase which will continue until water levels have stabilized near pre-test conditions. The monitoring frequency schedule during recovery will be the same as that followed during the pumping phase (every 10 seconds through the first 2 minutes, every 30 seconds the first 5 minutes, every minute the first 10 minutes, every 5 minutes the first hour, every 15 minutes through the third hour, every 30 minutes through the fifth hour, and every hour until the end of the test.)

PUMPHOUSE DESIGN AND CONSTRUCTION

A new pumphouse is not needed for well W440, because the well will be equipped with a pitless adapter and all of the normal pumphouse equipment can be located in an existing building. The intent is to make use of the unused boiler room in Walker Community Center, which is suitable for a long-term operation with minimal maintenance and operating requirements. This will avoid having to locate a new pumphouse building on the property.

The pump room is a solidly-built, insulated, masonry structure with a concrete floor. Electric heating and lighting and a floor drain are provided inside the pump room. The floor drain will discharge via a gravity line to an existing sanitary sewer manhole near the proposed well location. The proposed well location is not within a 100-year floodplain.

PIPING DESIGN AND CONSTRUCTION

The piping design for the Platteville Aquifer gradient control well is based on providing long-term, low-maintenance operation and will be similar in construction to the other piping construction specifications in other Reilly pumping wells. Galvanized pipe or ductile iron pipe will be used from the wellhead to the pump room, and on to the sanitary sewer. The discharge line inside the pump room will be provided with various control equipment, including a wellhead pressure gauge, a shut-off valve, a flow control valve, a flow meter, and a sample tap. The flow meter will signal a combined circular chart recorder/totalizer. The discharge from well W440 will be under pressure to an existing sanitary sewer line inside the existing building.

A diagram for the well W440 piping and sanitary sewer connection is presented in Figure 4. The City shall submit complete bid documents to the EPA and MPCA upon receipt of notice of acceptance of this Plan and authorization to proceed.

OPERATION AND MONITORING

The City will notify the EPA and MPCA when W440 construction is completed and ready for inspection and approval. Pumping of well W440 will begin within ten days of receiving approval of its construction from the EPA and MPCA Project Leaders. Well W440 will be pumped at a monthly average rate of 50 gpm (subject to aquifer test results), until a request to cease pumping is approved pursuant to RAP Section 9.1.4. Further details on the inspection, approval and start-up process are provided in Section 6.0 of the Quality Assurance Project Plan.

Well W440 will be operated and maintained by the City. The City will inspect the pump operation at least twice per week. All inspections will be noted in a log book using a form like the one shown in Figure 5. The flow meter totalizer readings, date, time, inspector's name, and any relevant comments will be recorded in the log during each inspection. The log book will be kept at the pump room. The log book and circular recorder charts will be maintained as permanent records by the City in accordance with applicable state and local statutes. The EPA and MPCA will be notified by the City before any of these records are destroyed.

Well W440 will be pumped continuously, except for brief shutdown episodes required for maintenance and/or repair. The City will notify the EPA and MPCA Project Leaders of any shutdown lasting more than three working days, with an explanation of the cause and an estimated date when pumping will be restarted. Shutdown periods for maintenance or repair are expected to be brief and infrequent because of the simple equipment involved.

FIGURE 4
Well W440 Piping Diagram

City of St. Louis Park
Gradient Control Wells

Well: _____ Month/Year: _____

Pump Set: _____

Date	Time	PSI	Hours	Totalizer	Gallons	Operator	Ave–gpm
31							
30							
29							
28							
27							
26							
25							
24							
23							
22							
21							
20							
19							
18							
17							
16							
15							
14							
13							
12							
11							
10							
9							
8							
7							
6							
5							
4							
3							
2							
1							

Total Pumpage _____

Daily Average _____

FIGURE 5

Well W440 will normally be pumped at a rate of 50 gpm (subject to aquifer test results), but this rate will be increased as required after shutdown periods in order to maintain a monthly average rate of 50 gpm. The monthly average rate will be calculated on a calendar month basis using the flow totalizer readings in the inspection log. Average flow rates for the month-to-date will be calculated and noted in the log book at least once a week to help ensure that the correct monthly average rate will be met each month. The circular charts from the flow recorder will not be used to determine compliance with the monthly average rate requirement because the totalizer gives more accurate readings. The circular charts are intended to document any variations in flow rate and any shutdown periods.

Monthly average pumping rates for W440 will be reported for the applicable calendar months in the progress reports required by Park K of the CD. In addition, the City will provide copies of the log book and circular charts to the EPA and MPCA Project Leaders upon request.

GROUND WATER MONITORING

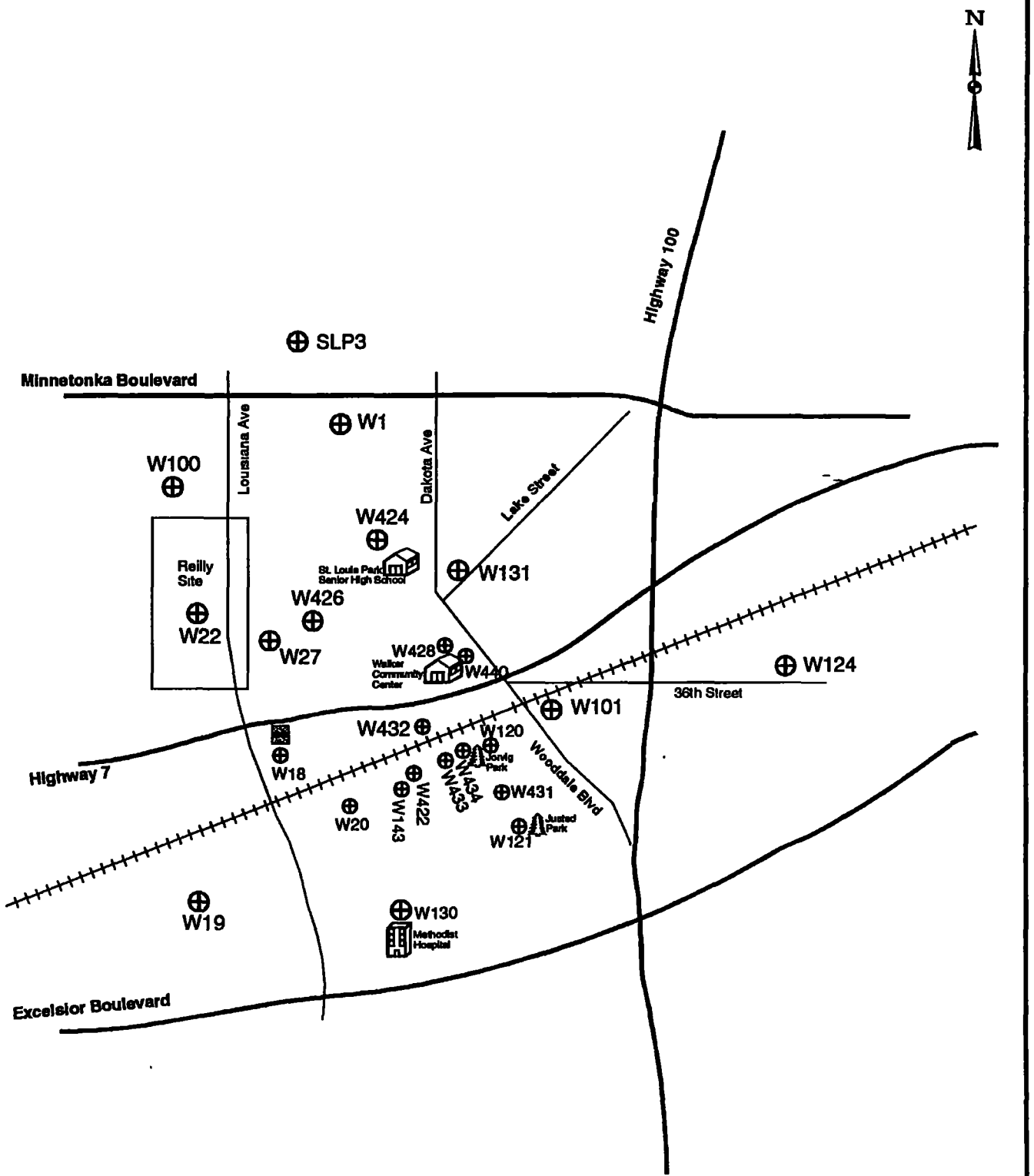
In accordance with the July 24, 1995, Record of Decision for the Platteville Aquifer, the wells scheduled to be sampled twice per year through the year 2000 are: W1, W18, W19, W20, W22, W27, W101, W120, W121, W124, W130, W131, W143, W420, W421, W422, W424, W426, W428, W431, W432, W433, W434, SLP3, and W440.

The locations of these wells are shown on Figure 6. W440 and the other 24 Drift, Platteville, and St. Peter Aquifer wells listed above will be sampled following well house construction and sewer connection within one week after start up of W440. The samples will be collected and analyzed for PAH and phenolics in accordance with the Annual Sampling Plan.

CONSTRUCTION REPORT AND SCHEDULE

The City will prepare a report which presents the installation logs for W440, the results of the aquifer tests, results of the initial ground water sampling event, and descriptions of any field adjustments to the approved design. The report will be submitted to the EPA and MPCA approximately 30 days following the receipt of the analytical data.

Figure 7 presents the construction schedule currently planned for well W440. This schedule is subject to modification as the work progresses. Figure 7 indicates a total schedule of 180 days for completing the well W440 construction project.



Scale 1000 0 1000 2000 Feet

EXPLANATION

⊕ W121 Sampling Well

W420/W421 Pumphouse

ENSR Consulting and Engineering

FIGURE 6

Sampling Well Locations

Platteville Aquifer Record of Decision
St. Louis Park, Minnesota

DRAWN DWJ	DATE: 2 Oct 95	PROJECT No.: 1620-013	Rev: 0
FILE: 1620-013d.cdr	CHECKED: wmg		

ANNUAL MONITORING REPORT

By March 15 of each year, the Annual Monitoring Report containing the results of all monitoring during the previous year will be submitted in accordance with CD-RAP Section 3.4, and will include information obtained from this Plan. This report will contain information as specified in the CD-RAP as well as the following:

- Results of all water level measurements and chemical analyses completed as a result of the construction of W440

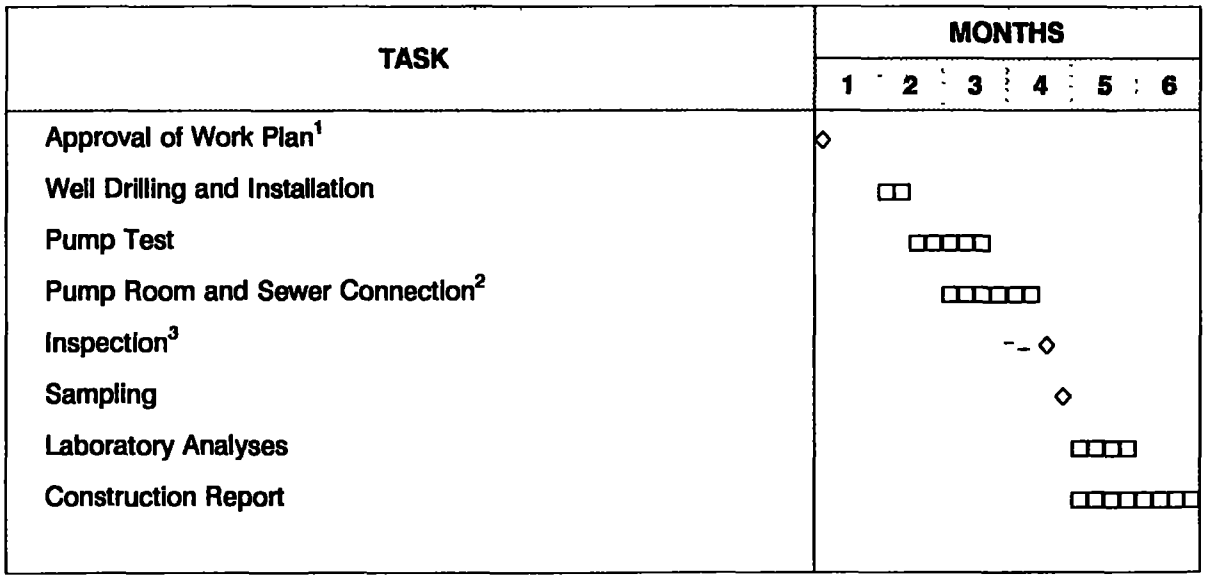
- A discussion of the monitoring (e.g. water quality trends) and water level measurements with respect to the gradient control system.

CESSATION

Cessation of the Platteville Aquifer Gradient Control Well (W440) will occur when operation of the well is no longer required to limit the spread of contamination in the Northern Area.

FIGURE 7

Project Schedule
City of St. Louis Park



[1] Contingent upon MPCA approval schedule
[2] Contingent upon contract agreements
[3] Contingent upon EPA and MPCA timing

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APPENDIX A

Contingency Plan

CONTINGENCY PLAN

It is unlikely that soils contaminated with coal tar materials will be encountered during the well drilling operations because the drilling site is located away from, and is at a higher elevation than the Reilly site. However, to be consistent with other Reilly site Work Plans, a Contingency Plan for contaminated soils is described below.

If any contaminated soils are encountered during excavation work, the Engineer or his representative will determine if the material is suitable for use as backfill based on the following visual determination:

- Excavated material containing creosote or coal tar constituents may be used as backfill material if the creosote or coal tar constituents have not acquired a cementatious nature so as to artificially bond the excavated soil structure as a concrete unit and if the creosote or coal tar constituents are not encountered in a definable homogeneous mass of excessive concentration or amount sufficient to preclude heterogeneous mixing with uncontaminated soils from the excavation area.

Any contaminated materials suitable for backfill will be covered with at least 12 inches of clean soil before final grading. Any contaminated soils that are not suitable for backfilling will be stockpiled at a temporary storage facility until all of the work required for the well construction has been completed. The stockpiled material will then be disposed of in accordance with all applicable state and federal regulations at a RCRA hazardous waste treatment/storage/disposal (TSD) facility legally permitted to accept the material and approved by the EPA and MPCA. The City will be responsible for said disposal activities.

The City will be responsible for keeping the EPA and MPCA informed of all significant actions involving excavation and disposal of contaminated soils and use of a temporary storage facility. All actions, decisions and communications by the City, EPA and MPCA in dealing with contaminated soils will be in accordance with and subject to the provisions of Parts I, J, and O of the Consent Decree.

CONTINGENT ACTIONS FOR CONTAMINATED WELL CONSTRUCTION MATERIALS

It is possible that solid and/or aqueous materials contaminated with creosote or coal tar constituents will be generated during the well construction work described in the project specifications. Any contaminated solids will be handled as excavated as described above, namely:

- Contaminated solids suitable for use as backfill will be used as such
- Contaminated solids unsuitable for use as backfill will be stockpiled in a temporary storage area for subsequent disposal at a RCRA TSD facility

Ground water and drilling fluids generated during well construction work will be classified as contaminated if the water exhibits a discernible oil sheen or oil phase. Contaminated water will be pumped to the sanitary sewer if it contains less than 10 percent organic material. Estimates of flow rate, disposal volume and water quality will be established and the Metropolitan Waste Control Commission (MWCC) will be informed before the discharge to the sanitary sewer if the estimated flow exceeds 150 gallons per workday. Contaminated liquids containing more than 10 percent organic material or failing to receive MWCC approval for discharge will be disposed of in accordance with all applicable local, state and federal rules and regulations and Part T of the Consent Decree. Uncontaminated water will be disposed of in the storm sewer or by other means acceptable to the City of St. Louis Park.

Any use of a temporary storage facility for contaminated well construction materials will be as described above for contaminated soils.

The City will keep the EPA and MPCA informed of all significant actions involving the generation and disposal of contaminated well construction materials and use of a temporary storage facility. All actions, decisions and communications by the City, EPA and MPCA in leading with contaminated well construction materials will be in accordance with and subject to the provisions of Parts I, J and O of the Consent Decree.

QUALITY ASSURANCE PROJECT PLAN
FOR THE PLATTEVILLE AQUIFER GRADIENT CONTROL WELL W440
AT THE REILLY TAR & CHEMICAL CORPORATION - ST. LOUIS PARK SITE

Prepared by

The City of St. Louis Park
St. Louis Park, Minnesota 55416

Approved by: Stephen Hastings for William Gregg Date: October 10, 1995
William M. Gregg, Project Manager
City of St. Louis Park, Minnesota

Approved by:_____ Date:_____
Quality Assurance Officer
U.S. EPA Region V

Approved by:_____ Date:_____
Remedial Project Manager
U.S. EPA Region V

Approved by:_____ Date:_____
Project Manager
Minnesota Pollution Control Agency

1.0 INTRODUCTION

1.1 Background

ENSR and the City of St. Louis Park (City) will complete certain tasks in fulfillment of the Consent Decree (CD) and Remedial Action Plan (RAP) for the St. Louis Park site. This Quality Assurance Project Plan (QAPP) pertains to all work to be performed by ENSR, City and other contractors in constructing a wellhouse and installing a pump for well W440. Further details on the work to be performed, its purpose and the methodology to be employed may be found in the project Site Management Plan.

1.2 Quality Objectives

The purpose of this QAPP is to define the quality assurance and quality control provisions to be implemented to ensure that:

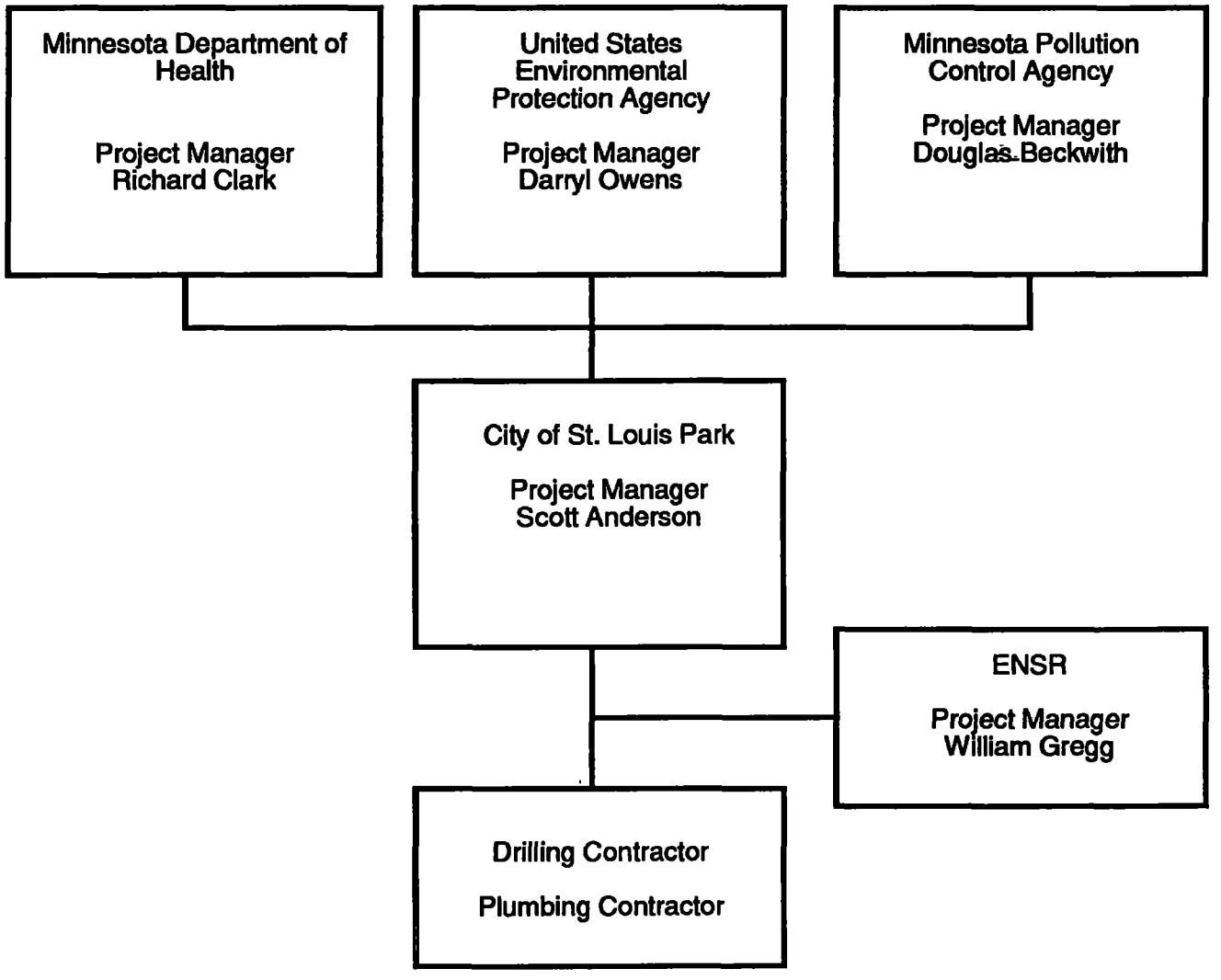
- The resulting gradient control well conforms to design specifications given in the project Site Management Plan
- The work is performed in an efficient manner
- Field records generated during the course of the field work are sufficiently complete and accurate to satisfy data analysis and report requirements
- All assumptions, formulas, interpretations and numerical analyses used in the process of deriving reported results and conclusions are documented in permanent records

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The project organization is illustrated in Figure 2-1. The City Project Manager, Mr. Scott Anderson, will oversee and coordinate all project activities and direct the engineering aspects of the work, including the installation of the sewer line connections and pumphouse. The ENSR Project Manager/Field Coordinator, Mr. William Gregg, is responsible for overseeing field activities, maintaining records of the work performed on the project, and for archiving those records in the Central File upon completion of the work.

Figure 2-1

Project Quality Assurance Organization



3.0 QA/QC - FIELD ACTIVITIES

3.1 Training

In order to ensure that the contractors doing the field work can do so in a cooperative and efficient manner, instruction and guidance will be provided by the City Project Manager and the ENSR Project Manager/Field Coordinator to instill an understanding of the project objectives and plans and of the respective roles of the contractors.

3.2 Contractor Quality Control

Contractor quality control is that system of activities which ensure that products or services obtained from contractors fulfill the needs of the project. Contractor quality control begins with contractor procurement. The contractor procurement process considers:

- Bidder's qualifications in terms of personnel and physical resources, Quality Assurance program, and Health and Safety program
- Results of pre-qualification audits, if appropriate
- Price and technical qualifications

Periodic quality control inspections of each contractor will be performed by the City Project Manager and the ENSR Project Manager/Field Coordinator to evaluate adherence to the QAPP and the project Health and Safety Plan. Inspection will include (as appropriate):

- Type and condition of equipment
- Calibration procedures
- Personnel qualifications
- Decontamination procedures
- Documentation

Results of the inspections will be entered in the field notebook.

3.3 Document Control and Recordkeeping

Document control for the gradient control well W440 work serves a two-fold purpose. It is a formal system of activities that ensures that:

1. All participants in the project are promptly informed of revisions of the QAPP

2. All critical documents generated during the course of the work are accounted for during, and at the end of the project

This QAPP and all Standard Operating Procedure (SOP) documents have the following information on each page:

- Document number
- Page number
- Total number of pages in document
- Revision number
- Revision date

When any of these documents are revised, the affected pages are reissued to all personnel listed as document holders with updated revision numbers and dates. Issuance of revisions is accompanied by explicit instructions as to which documents or portions of documents have become obsolete.

Control of, and accounting for documents generated during the course of the project is achieved by assigning the responsibility for document issuance and archiving. For the gradient control well W440 work, the City Project Manager and the ENSR Project Manager/Field Coordinator have this responsibility.

Documentation for the project will either be recorded in non-erasable ink, or will be photocopied promptly upon completion, and the photocopies dated. All documents will be signed by the person completing them.

4.0 NUMERICAL ANALYSIS AND PEER REVIEW

All numerical analyses, including manual calculations, mapping, and computer modeling will be documented and subjected to quality control review in accordance with ENSR SOP 1005, Numerical Analysis and Peer Review (Appendix A). All records of numerical analyses will be legible, reproduction-quality and complete enough to permit logical reconstruction by a qualified individual other than the originator.

5.0 AUDITS AND CORRECTIVE ACTION

ENSR conducts periodic audits to assess the level of adherence to QA policies, procedures and plans.

Whenever quality deficiencies are observed that warrant immediate attention, formal corrective action request forms are issued to the City Project Manager by the Quality Assurance Department. The QA Department retains one copy of the form when it is issued. The City Project Manager completes the form and signs it when corrective action has been implemented, and returns the original to the QA Officer to close the loop.

The QA Department maintains a record of all corrective action requests and reports their status to ENSR management in a quarterly report.

Should an audit be conducted on the gradient control well W440 work activities, the City will be apprised of the audit findings and of any corrective action that is requested and performed.

6.0 CONSTRUCTION APPROVAL

The City Project Leader will provide written notification to the United States Environmental Protection Agency (U.S. EPA) and Minnesota Pollution Control Agency (MPCA) Project Leaders within three days of completing construction of the well W440 well house and pumping system. Following receipt of such notification, the EPA and MPCA Project Leaders (or their designees) will inspect the system and the City will demonstrate that the system has been constructed and operates in accordance with the approved plan. Following their inspection of the system, the EPA and MPCA Project Leaders (or Alternates) will notify the City Project Leader in writing as to whether the gradient control well W440 system is approved or disapproved. In the event that the system is approved, the City will commence operation of the system within ten days of receipt of the approval letter. In the event that the system is disapproved, the U.S. EPA and MPCA Project Leaders will explain in writing the basis for the disapproval and the items that needs to be corrected, and the City will either correct the items or explain in writing why the system should be approved as constructed. If corrections are made, the notification, inspection, and approval/disapproval sequence described above will be repeated.

Notwithstanding the procedures described above, the City, EPA, MPCA and Reilly reserve all of their rights under the Consent Decree for dispute resolution, extension requests and related actions with respect to the construction, inspection, approval and operation of well W440.

HEALTH AND SAFETY PLAN
FOR THE PLATTEVILLE AQUIFER GRADIENT CONTROL WELL W440
AT THE REILLY TAR & CHEMICAL CORPORATION - ST. LOUIS PARK SITE

October 1995

1.0 INTRODUCTION

This Health and Safety Plan (Plan) applies to on-site personnel who will potentially be exposed to soil and/or ground water contamination during the construction of the gradient control well W440 near the Reilly Tar & Chemical Corporation, St. Louis Park, site. This Plan has been designed to comply with, as a minimum, the requirements set forth in 29 CFR 1910.120, the OSHA standards governing hazardous waste operations. The ENSR Consulting and Engineering (ENSR) Project Manager and project staff will be responsible for continuous adherence to the safety procedures during site work at St. Louis Park. In no case may work be performed in a manner that conflicts with the intent of or the safety concerns expressed in this Plan. Other contractors involved in this project will be required to adhere to this Plan, as a minimum, and to conduct all work in accordance with applicable health and safety regulations, including 29 CFR 1910.120.

2.0 SCOPE OF WORK

Specific work activities at the site will include the installation of a pump in well W434, connection of the well discharges to the sanitary sewer system, and erection of brick-and-block well house. A trench will be dug from the well houses to the sanitary sewer in order to make the discharge connections.

Exposure to the contaminants described below may occur during the performance of these activities.

3.0 CONTAMINANTS OF CONCERN AND EFFECTS OF OVEREXPOSURE

The contaminants of concern which have been identified at this site are coal tar and creosote related materials including naphthalene, other polynuclear aromatic hydrocarbons (PAH) and phenolic compounds.

Coal tar and creosote are typically irritating to the eyes, skin and respiratory tract. Acute skin contact may cause burning and itching while prolonged contact and poor hygiene practices may produce dermatitis. Prolonged skin contact with creosote must be avoided to prevent the possibility of skin absorption.

Naphthalene is a hemolytic agent which, upon overexposure to the vapor or ingestion of the solid, may produce a variety of symptoms associated with the breakdown of red blood cells. Naphthalene is also irritating to the eyes and repeated or prolonged contact has been associated with the production of cataracts.

Repeated exposure to certain PAH compounds has been associated with the production of cancer. Contact of PAH compounds with the skin may cause photosensitization of the skin producing skin burns after subsequent exposure to ultraviolet radiation.

Phenolics are generally strong irritants which can have a corrosive effect on the skin and can also rapidly penetrate the skin. Overexposure to phenols and phenolic compounds may cause convulsions as well as liver and kidney damage.

4.0 HAZARD ASSESSMENT

4.1 Initial

Because of the relatively low vapor pressures associated with PAH compounds (generally less than 10^{-4} mm/Hg at 20°C), they are not expected to present a vapor hazard at this site. The most likely threat of exposure to these compounds will be via skin contact.

Although naphthalene and phenol also have relatively low vapor pressures (0.05 and 0.36 mm/Hg at 20°C, respectively), there is a possibility that these substances may produce vapor hazards at this site under adverse conditions.

4.2 Continuing Hazard Assessment On-Site

4.2.1 Air Monitoring

An HNu photoionization detector (PID) equipped with a 10.2 eV lamp will be used to provide semiquantitative data on VOC concentrations in and around the breathing zone of workers. Air sampling will be conducted by taking and recording periodic readings in the breathing zone at each of the following locations:

- In the breathing zone near the opening of the well being drilled
- In the breathing zone over freshly-exposed soil being excavated

4.2.2 Action Limits

The American Conference of Governmental Industrial Hygienists (ACGIH) has established threshold limit values (TLV) for phenol and naphthalene at 5 and 10 ppm, respectively, as 8-hour time weighted averages (TWA). Based on these values, the action limits in Table 4-1 have been set. The lower limit of 5 ppm is based on the TLV for phenol while the upper limit of 50 ppm is based on a minimum protection factor of 10 for a half mask, air purifying respirator.

TABLE 4-1

Action Limits for Air Contaminants

Limit	Persistent Concentrations in Breathing Zone	Procedure
Lower	5 ppm	Don respirators, step up monitoring
Upper	50 ppm	Stop work and back off from immediate work area until levels subside in the breathing zone

4.2.3 Response

When the PID yields persistent breathing-zone readings at or above the lower action limit, workers in the affected area will don respirators. Air sampling will continue on a more frequent basis. If readings are persistent at or above the upper limit, workers shall back off from the immediate work area until measured breathing-zone concentrations fall below the lower limit, at which time operations will resume and normal air monitoring will continue. If breathing zone levels do not fall below the upper limit, workers are to leave the work area and report the condition immediately to the Health and Safety Manager. If necessary, engineering controls will be instituted to maintain vapor concentrations below the upper limit or arrangements will be made to upgrade to Level B protection.

5.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) will be donned, as necessary, based on the hazards encountered. Listed below is the PPE to be utilized during this project and the conditions requiring its use.

5.1 Personal Protective Equipment

- Coveralls Polyethylene coated Tyvek if work involves contact with contaminated soil or ground water
- Boots Chemical resistant type if work involves contact with contaminated soil or ground water
- Hard Hat When working in the vicinity of operating heavy machinery (i.e., drill rig, backhoe, etc.)
- Face Shield If splash hazard exists
- Gloves Nitrile for potential contact with contaminated soil or ground water
- Respirator MSA Comfo II with GMC-H Cartridges if PID readings exceeds 5 ppm or if dust or odors become objectionable
- Chemical Safety Goggles If eye irritation occurs

Because of the carcinogenicity of certain PAH compounds, and because of the skin hazards associated with PAH and phenolic compounds, it is important that appropriate protective clothing be worn during work activities, such as drilling and excavation, which may involve the possibility of skin contact with contaminated soil or ground water. As a minimum, the presence of visible creosote or coal tar-related material shall constitute evidence of contaminated soil or ground water.

6.0 HEALTH AND SAFETY TRAINING

Site personnel covered by this Plan must have received appropriate health and safety training prior to their working on the site. Training will include:

- Requirements for and use of respirators and PPE
- Cautions regarding the potential for trench collapse
- Required personal hygiene practices
- Requirements for employees to work in pairs
- Proper material handling
- Proper sampling procedures
- Maintenance of safety equipment
- Effective response to any emergency
- Responses to fires and explosions
- Emergency procedures (e.g., in the event of a trench collapse)
- Hazard zones
- Decontamination methods
- General safety precautions

A copy of the Standard Safety Procedures (Table 6-1) will be given to each worker covered by this Plan.

TABLE 6-1

Standard Safety Procedures
RTCC St. Louis Park Site

- Employees are required to work in pairs.
- Wash face and hands prior to eating, smoking, or leaving the site.
- No smoking or eating is allowed in the work area during active drilling, excavation or sampling activities.
- Wearing of contact lenses is not permitted in the work area.
- Contaminated material (e.g., Tyvek coveralls) must be properly disposed of before leaving the site.
- All work must be conducted in accordance with local, state and federal EPA and OSHA regulations, particularly 29 CFR 1910.120.
- The walls of trenches greater than 4 feet in depth must be sloped back to the angle of repose prior to entering. For average soil, an angle of 45° is recommended.

7.0 DECONTAMINATION

Administrative procedures require hygienic practices consistent with work hazards. Employees will be instructed in the training program on proper personal hygiene procedures.

Contaminated, reusable PPE, such as boots, hard hats, face shields and goggles will be decontaminated prior to leaving the site. The decontamination procedure is as follows:

- Rinse with water to remove gross contamination
- Wash in Alconox or equivalent detergent solution
- Rinse with clean water

Contaminated, disposable PPE, such as Tyvek coveralls and gloves, will be placed in 55-gallon drums and stored on-site while arrangements are made for disposal.

Respirators, if used, will be cleaned and disinfected after each day of use. The facepiece (with cartridge removed) will be washed in a hypochlorite (or equivalent) disinfecting solution, rinsed in warm water and air dried in a clean place.

8.0 EMERGENCY PROCEDURES

This Plan has been established to allow site operations to be conducted without adverse impacts on worker health and safety as well as public health and safety. In addition, supplementary emergency response procedures have been developed to cover extraordinary conditions at the site.

8.1 General

All accidents and unusual events will be dealt with in a manner to minimize a continued health risk to site workers. In the event that an accident or other unusual event occurs, the following procedure will be followed:

- First aid or other appropriate initial action will be administered by those closest to the accident/event. This assistance will be conducted so that those rendering assistance are not placed in a situation of unacceptable risk. In the event that a worker is caught in a trench collapse, call for emergency assistance immediately.

- All accidents/unusual events must be immediately reported to the ENSR Health and Safety Manager, the ENSR Project Manager, and the other contacts listed in Table 8-1.

- All workers on-site should conduct themselves in a mature, calm manner in the event of an accident/unusual event, to avoid spreading the danger to themselves, surrounding workers and the community.

8.2 Responses to Specific Situations

Emergency procedures for specific situations are given in the following paragraphs.

8.2.1 Worker Injury

If an employee in a contaminated area is physically injured, Red Cross first-aid procedures will be followed. Depending on the severity of the injury, emergency medical response may be sought. If an excavation collapses and a worker is caught, call for emergency assistance immediately. If the person is in no immediate danger, do not attempt to move him. Internal injuries could be worsened. If the employee can be moved, he will be taken to the edge of the work area (on a stretcher, if needed) where contaminated clothing (if any) will be removed,

TABLE 8-1

Notification Checklist
RTCC St. Louis Park Site

In the event of an extraordinary event that might be damaging to personnel or adjacent property, immediate notification of the proper emergency service will be required. The proper emergency service is determined by the nature of the emergency.

Emergency Notification

Fire Department	911
Ambulance	911
Police Department	911
Methodist Hospital	932-5000
Poison Control Center	800-332-3073

Directions to Methodist Hospital: From the site, go east (one block) to Alabama Avenue. Go south on Alabama Avenue (approximately 0.5 mile) to Excelsior Blvd. Go west on Excelsior Blvd. (approximately four blocks). Methodist Hospital is on right (north) side of Excelsior Blvd. (see attached map).

ENSR Contacts

Health and Safety Manager - Kevin Powers	617-369-8910
Project Manager - William Gregg	612-924-0117

Other Contacts

MPCA - Douglas Beckwith	612-296-7288
EPA - Darryl Owens	312-886-7341
City of St. Louis Park - Scott Anderson	612-924-2557

SOURCE: USGS 7½ Minute Topographic Quadrangle, Minneapolis South, Minnesota, 1967, photorevised, 1993

SCALE

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ENSR

ENSR Consulting and Engineering

FIGURE 8-1

HOSPITAL LOCATION MAP

St. Louis Park, Minnesota

DRAWN: JJO	DATE: September 20, 1995	PROJECT NO.:	REV:
FILE NO.:	CHECKED: DWJ	1620-013-300	

emergency first-aid administered, and transportation to a local emergency medical facility awaited.

If the injury to the worker is chemical in nature (e.g., overexposure), the following first-aid procedures are to be instituted:

- Eye Exposure If contaminated solids or liquids get into the eyes, wash eyes immediately using large amounts of water and lifting the lower and upper lid occasionally. Obtain medial attention immediately.

- Skin Exposure If contaminated solids or liquids get on the skin, promptly wash the contaminated skin using soap or mild detergent and water. Obtain medical attention immediately when exposed to concentrated solids or liquids.

- Inhalation If a person inhales large amounts of a toxic vapor, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Obtain medical attention as soon as possible.

- Swallowing When contaminated solids or liquids have been swallowed, the Poison Control Center will be contacted and their recommended procedures followed.

8.3 Notification

8.3.1 Checklist

The names and phone numbers of all personnel and agencies that could be involved in emergency responses have been determined. Table 8-1 provides the notification checklist for use at the St. Louis Park site.

8.3.2 Documentation

The ENSR Project Manager will provide a report to the Health and Safety Manager containing the following information regarding any incidents implicating health and safety concerns:

- The event (including date and time) that necessitated the notification and the basis for that decision

- Date, time, and names of all persons/agencies notified and their response

- Resolution of the incident (including duration) and the method/corrective action involved

This report will be submitted within five working days of the resolution of the event.

COMMUNITY RELATIONS PLAN
FOR THE PLATTEVILLE AQUIFER GRADIENT CONTROL WELL W440
AT THE REILLY TAR & CHEMICAL CORPORATION - ST. LOUIS PARK SITE

October 1995

COMMUNITY RELATIONS PLAN

Construction of the pumphouse for well W440 will be undertaken pursuant to the provisions of the Consent Decree and Remedial Action Plan for the Reilly Tar & Chemical Corporation, St. Louis Park, Minnesota, NPL site. All community relations programs related to this work will be coordinated through the following agencies:

United States	Ms. Judy Beck U.S. Environmental Protection Agency Region V (312) 353-1325
State of Minnesota	Ms. Susan Brustman Minnesota Pollution Control Agency (612) 296-7769
City of St. Louis Park	Mr. Scott Anderson City of St. Louis Park (612) 924-2551